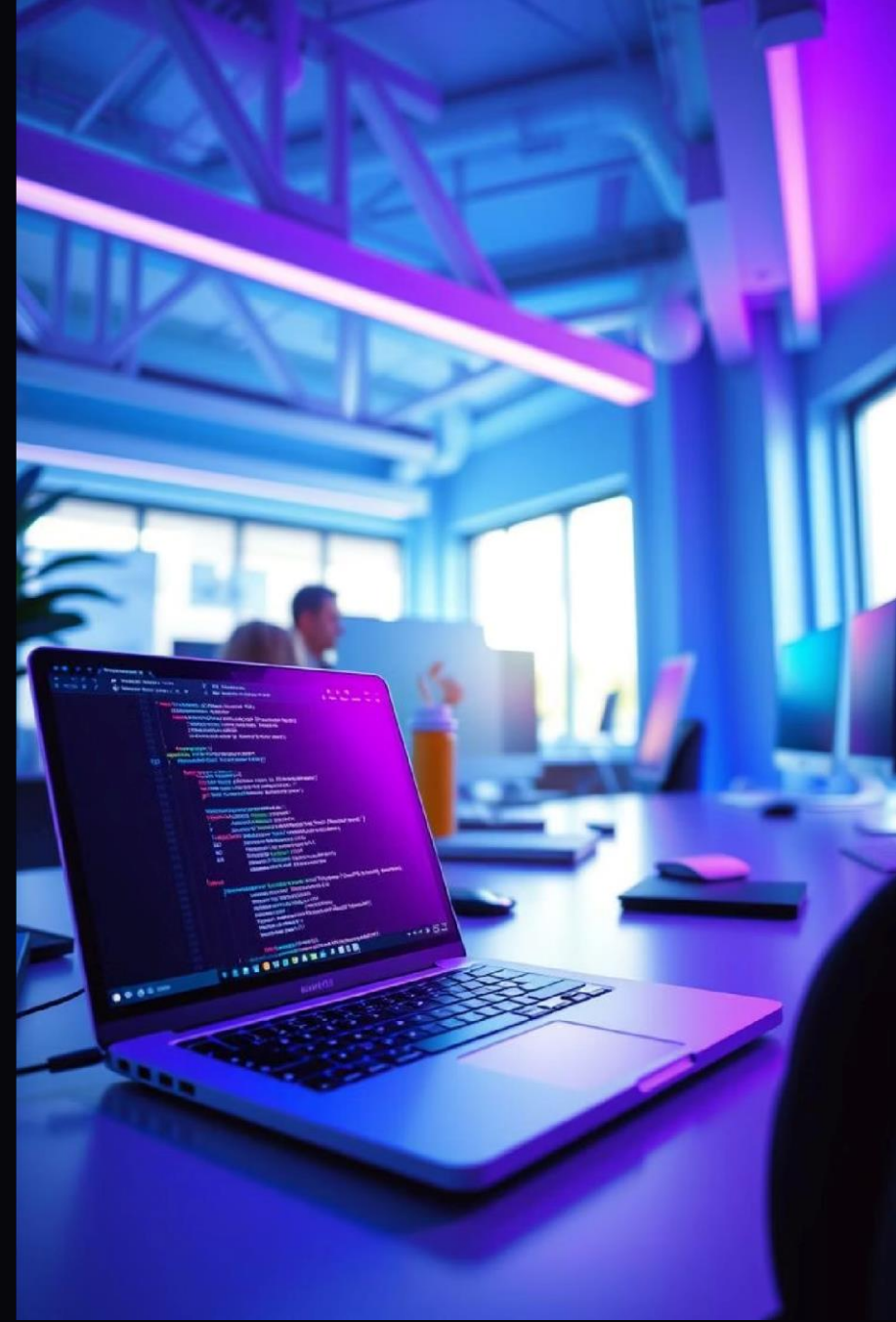


# Java Tutorial: From Zero to Hero

Learn Java, the backbone of enterprise applications. Gain core skills and best practices. Build real-world projects confidently.

**P** by Prabhat Chaudhary



# Setting Up Your Development Environment

## Install JDK

Download Oracle or OpenJDK.  
Set JAVA\_HOME variable properly.

## Choose IDE

- IntelliJ IDEA for powerful tools
- Eclipse as open-source option
- VS Code with Java extensions

## Configure IDE

Customize settings for efficient Java development and debugging.



# Java Basics: Syntax and Data Types

## Core Syntax

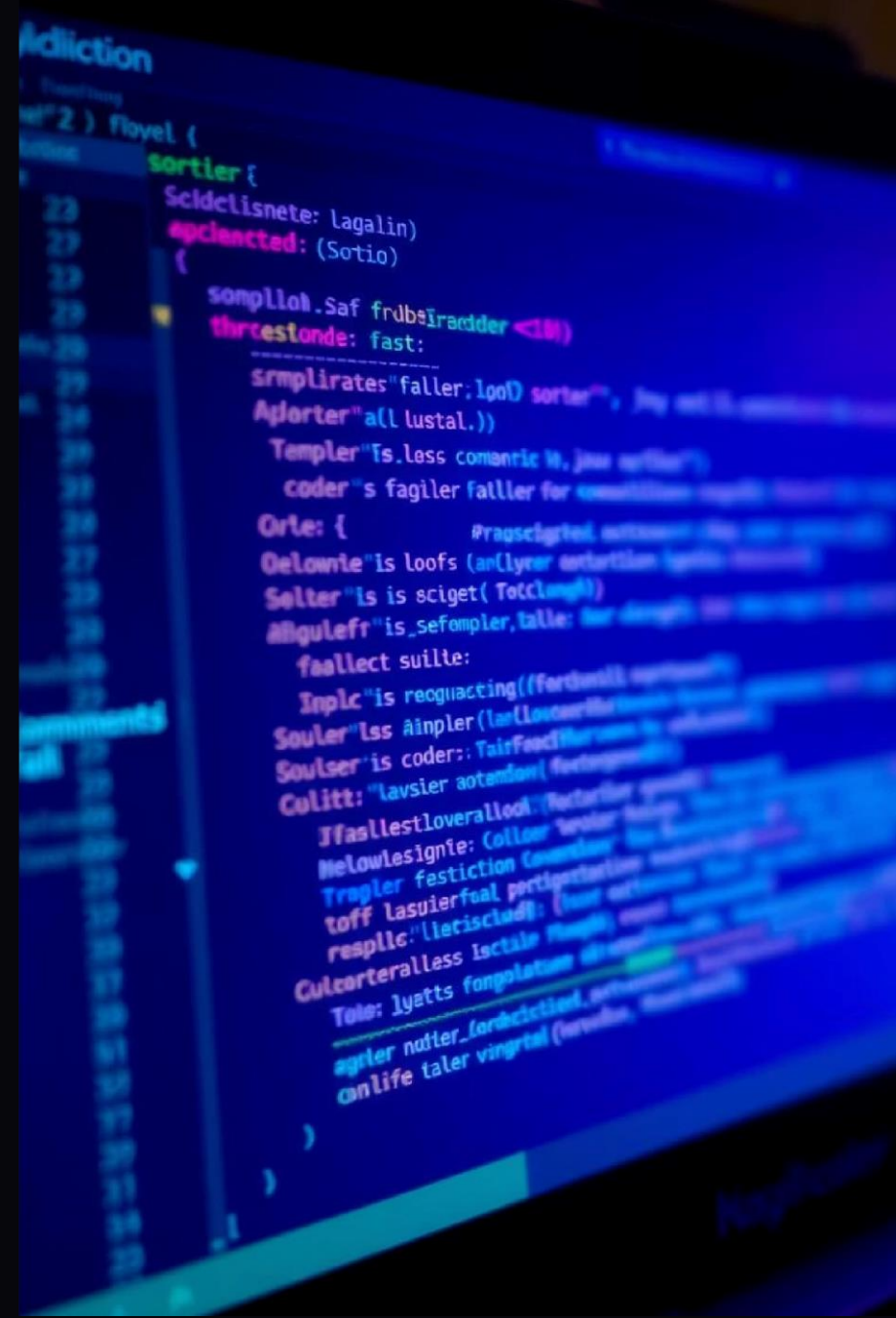
Classes, methods, statements form the program structure.

## Control Flow

If-else statements and loops guide the program logic.

## Data Types

Primitives like int, double, boolean; plus String objects.



# Object-Oriented Programming (OOP)

## Key Concepts

- Encapsulation
- Inheritance
- Polymorphism

## Example

Create a Car class with fields and behaviors using access modifiers.





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# Working with Collections



## List Types

Use ArrayList and LinkedList for ordered collections.



## Sets and Maps

HashSet for unique elements, HashMap for key-value pairs.



## Operations

Add, remove, check contents, and iterate collections easily.

# Exception Handling

## Basics

Use try-catch to handle runtime issues gracefully.

## Common Exceptions

Handle IOException, NullPointerException, and others properly.

## Advanced

Throw exceptions and use finally for cleanup actions.



# Input/Output (I/O) Operations

## 1 File Access

Read and write data to files with streams and Scanner.

## 2 Object Serialization

Save and restore object states efficiently.

## 3 Practical Use

Example: Process data from CSV files programmatically.



## Next Steps: Advanced Topics

1

### Concurrency

Learn multithreading for parallel tasks.

2

### Networking

Use sockets for communication over networks.

3

### Databases

Connect to databases with JDBC.

4

### GUIs and Frameworks

Build interfaces with Swing/JavaFX and explore Spring or Hibernate.